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CONTENTS:

Some Algae from British Columbia. *W. R. Taylor* 101

Additions to the Flora of Connecticut. Series 2 111

Some Nova Scotia Mosses. *E. B. Bartram* 121

Waldsteinia in Maine. *J. C. Parlin* 124

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THE NEW ENGLAND BOTANICAL CLUB

Vol. 24. June, 1922. No. 282.

NOTES ON SOME ALGAE FROM BRITISH COLUMBIA.

Wm. Randolph Taylor.

The amount of information available regarding the algal vegetation of the mountainous portions of North America being very small it is perhaps not amiss to record the results of a study of some collections of algae made at various points in the Selkirk and the neighboring Eagle Pass Mountains of British Columbia. During the latter part of the summer of 1921 the writer had the pleasure of making one of a party under the direction of Dr. Merkel H. Jacobs which camped in this region. Although not in the field primarily for the purpose of collecting, the opportunity was too good to be altogether neglected, and this note is based on the collections of algae secured at that time and examined on return to the laboratory.

The sources of the material fall into three groups. The first collections were made west of the town of Revelstoke, starting near the Big Eddy of the Columbia River on the west bank, and thence north and west to an altitude of about 7,000 feet on an unnamed mountain lying between Cañon and Half-way Creeks, both of which empty into Jordan Creek, a tributary of the Columbia River. This mountain is one of the Eagle Pass group of the Columbia system, which lies west of the Big Bend of the Columbia River. The other two areas traversed were in the Selkirk Mountains, which lie within the Big Bend, surrounded by it on the east, north and west. A few days at Glacier gave an opportunity to get material from the valley near the Illecillewaet Glacier, from various stations on the Cascade

Ridge, and elsewhere. Finally, a more extended trip was made south from Beavermouth to the headwaters of Quartz Creek, with a side trip to Fish Lake.

In all, some seventy collections were brought away, half from alpine situations and half from lower levels. The number and size of the collections were limited by several factors. The party was carrying its equipment and provisions, and (except at Glacier) was as often as not without any trail to follow, and this with persistent rainy weather made it necessary to minimize the weight of fluid collections for transport. Toward the end of the trip—after the tenth of September—there was considerable snow and the exceedingly low temperatures froze up the alpine pools and thickly coated the more exposed stones in the streams with ice, precluding further operations in the region where the most effective collecting could have been done. A small part of the material was dried in masses on paper, which was very satisfactory for many of the *Myxophyceae*. Other lots were preserved in weak formalin or with iodine, which last was very good for many of the *Conjugales*, though poor for *Myxophyceae*. As each collection included several samples from the habitat under observation they sometimes contained a very considerable number of forms.

From the advanced season at which the material was obtained it may be supposed that the growing season for algae was approaching its close; indeed towards the end the material in the higher pools often appeared far gone in decay. So far as the alpine algae may show seasonal phases, it is, then, the autumnal condition that was represented. To discuss the distribution of the flora geographically is not possible with so small a number of stations represented although certain features of habitat are worth consideration. With regard to altitude, no sharp boundary separating off an alpine flora was found. However, nearly two-thirds of the species found at or above 5500 feet were not noted below that level, while of those found below 3000 feet only one-third appeared also in the higher collections. That this difference in flora is partly due to other factors than alpine conditions is evident from an inspection of the list of species, where it may be seen, for instance, that *Pediastrum* only appeared at the higher levels, a condition which is explained by the fact that large pools of standing water were absent from the lower valleys traversed. In

such lower valleys patches of wet rock or moss frequently were partly covered with *Phormidium Retzii* or in one instance *Cylindrospermum majus*. In the ravine below the Falls of Jordan Creek a series of dripping cliffs supporting a sub-alpine phanerogamic flora (*Pinguicula* etc.) showed a luxuriant growth of *Nostoc commune* and *N. microscopicum* with spherical colonies reaching a considerable size. This alga was one of those most frequently found in damp situations. It was expected that the many small streams would show a rich flora of such genera as *Lemanea* and *Batrachospermum*, but the former was not detected and the latter was represented only by *Batrachospermum moniliforme*, which appeared but once in the Eagle Pass Mountains and once in the Selkirks. In the Selkirks when there was any prominent algal vegetation in the rapid streams it appeared to consist of *Hydrurus foetidus*. The flora of the alpine pools was given special attention. Sometimes grass or mosses bordered the pool and lined its bottom almost to the exclusion of algae. On the other hand the edge among the grasses often showed a large quantity of *Nostoc*, mixed with *Microcoleus paludosus*. Again, in some the bottom was lined with a vigorous growth of *Stigonema ocellatum*. The floating masses of semi-decayed algae which filled many of the pools usually showed a predominance of *Mougeotia*, sometimes with a good deal of *Zygnema*. Mixed with this there appeared a variety of *Myxophyceae*, notably *Scytonema myochrous* and *Tolypothrix lanata*, various species of *Chroococcus*, of which *Chroococcus turgidus* was the most common, *Phormidium laminosum*, *Pediastrum* and *Oocystis*, an abundance of desmids (often with zygospores), diatoms, and fragments of such genera as *Bulbochaete* and *Oedogonium* which probably had matured earlier in the season. Examination of the many places where green masses of filamentous algae covered wet stones or filled little pools among the rocks, showed a predominance of *Mougeotia* with *Zygnema* also frequent, but *Spirogyra* only turned up in a few cases and was always sterile. A *Ulothrix* was attached to the tufts of *Stigonema mammillosum* on the rocks in the bed of Cañon Creek, but could not be identified with sureness. The wet cliffs and rocks on the mountain-sides sloping toward the upper end of Fish Lake offered the best opportunity to study the flora of such a substratum among alpine surroundings. The predominant and showy types were *Glococapsa magma*, which colored the rocks dark red, and *Stigonema informe* which spotted them

with olive-green rounded patches. On one rock *Phormidium autumnale* produced a strongly contrasting blue-green expanse. The stones in a little stream flowing into the lake were found by Dr. Jacobs to be covered with little green streamers which on examination proved to be the interesting *Prasiola fluviatilis*. One patch of "Red Snow" was encountered near the end of the climb in the Eagle Pass Mountains. Samples were melted, allowed to settle, and the sediment preserved. It was found to be composed of spherical cells, probably *Chlamydomonas nivalis*, and the peculiar stellate organism, *Chionaster nivalis*, described by Bohlin[1], [2], from Lapland.

The writer desires to acknowledge with thanks the help of all members of the party in securing material; the advice and assistance of Dr. M. A. Howe and Dr. N. L. Gardner, the kindness of Dr. E. N. Transeau in verifying the determinations of *Mougeotia calcarea* and *Zygnema cylindricum*, the determination of *Chionaster nivalis* by Dr. Tracey E. Hazen, and the opportunity given by Dr. C. W. Dodge for comparing certain specimens with exsiccatae in the Herbarium of the Cryptogamic Laboratory of Harvard University.

List of Species

Myxophyceae

Anabaena flos-aquae (Lyngb.) Bréb. Eagle Pass Mountains: among other algae in a pond and among mosses in rivulet at 6000 feet; rare. Selkirk Mountains: little pools above the head of Fish Lake, 5200 feet.

Anabaena inaequalis (Kuetz.) B. & F. Eagle Pass Mountains: occasional in rivulets and ponds at 6000 feet. Selkirk Mountains: in valley below Asulkan Pass, 5000 feet, and in pools in the pass at the head of Quartz Creek, 6500 feet. In one pool on the ridge east of Quartz Creek at about 6700 feet there occurred a slight "bloom" of an *Anabaena* which lacked spores but which in measurements of vegetative cells and heterocysts agreed with this species. It was the only instance observed during the trip of a blue-green alga forming a "bloom."

Aphanothece microspora (Menegh.) Rabenh. Eagle Pass Mountains: frequent on cliffs near the Falls of Jordan Creek at 2000 feet and in a pond at 6000 feet. Selkirk Mountains: pools in Quartz Creek valley at 5700 feet and near its source at 6500 feet, also at 6700 feet in a pool on the ridge east of the valley.

[1] Bohlin, K. Snöalger från Pite. Bot. Notiser **1893** p. 46.
[2] Bohlin, K. Ueber Schneealgen aus Pite-Lappmark. Bot. Centralbl. **64**: 42–45.

APHANOTHECE SAXICOLA Naeg. Selkirk Mountains: wet rocks by a spring near Cascade Summit, Glacier, at 5500 feet; pools at the source of Quartz Creek at 6500 feet and pools east of the valley at 6700 feet.

CALOTHRIX PARIETINA (Naeg.) Thuret. Frequent, though never in any large quantity. Eagle Pass Mountains: cliffs at the Falls of Jordan Creek at 2000 feet, and in rivulet at 6000 feet. Selkirk Mountains: wet rocks above the head of Fish Lake at 5200 feet, rivulets tributary to Quartz Creek at 3000 feet and at 5700 feet, also in pools in pass at head of Quartz Creek at 6500 feet.

CHROOCOCCUS COHAERENS (Bréb.) Naeg. Selkirk Mountains: in debris in the bottom of pools and on dripping rocks above the head of Fish Lake at 5200 feet, frequent.

CHROOCOCCUS MACROCCUS (Kuetz.) Rabenh. Selkirk Mountains: occasional, pools above the head of Fish Lake at 5200 feet and in the pass at the source of Quartz Creek, 6500 feet.

CHROOCOCCUS MINUTUS (Kuetz.) Naeg. Frequent among other algae. Eagle Pass Mountains: ponds and slow rivulets at 6000 feet. Selkirk Mountains: on rocks near Cascade Summit, Glacier, at 5500 feet; pools above the head of Fish Lake at 5200 feet, and in Quartz Creek valley at 5700 feet, at the source of the stream at 5700 feet and in pools east of the valley at 6700 feet.

CHROOCOCCUS TURGIDUS (Kuetz.) Naeg. Frequent among other algae. Eagle Pass Mountains: rocks at the mouth of Canon Creek and the cliffs at the Falls of Jordan Creek, 2000 feet; rocks between Jordan Creek and the Big Eddy of the Columbia River, 1800 feet. Selkirk Mountains: Cascade Summit Trail at 5500 feet on rocks and in moss, and in the valley below the Asulkan glacier among filamentous algae at 5000 feet. In the Quartz Creek valley it appeared from 5700 to 6500 feet and in ponds east of the valley at 6700 feet.

CYLINDROSPERMUM MAJUS Kuetz. Eagle Pass Mountains: on damp moss in a rivulet near the Big Eddy of the Columbia River.

DICHOTHRIX. Two algae, quite different but seeming to belong to this genus, were found, but could not be certainly identified with any known species. Rare, one in the Eagle Pass Mountains at 6000 feet and the other in the Selkirk Mountains at 6500 feet.

GLOEOCAPSA AERUGINOSA (Carm.) Kuetz. Eagle Pass Mountains: wet rocks between Jordan Creek and the Big Eddy of the Columbia River, 1800 feet; cliffs at the falls of Jordan Creek, 2000 feet. Selkirk Mountains: wet rocks on Cascade Summit trail at 5500 feet, Glacier, and wet rocks above the head of Fish Lake at 5200 feet, where it was one of the chief items.

GLOEOCAPSA MAGMA (Breb.) Kuetz. Selkirk Mountains: locally abundant, forming with *G. aeruginosa* and *Gloeocapsa sp.?* a dark red coating on wet rocks above the head of Fish Lake at 5200 feet.

GLOEOCAPSA SP.? This form seems to be near *G. alpina* (Naeg.) Brand, but cannot, as yet, with any show of assurance be designated as the same. Its identity may best be held in question pending a further comparison with exsiccatae. Locally abundant. Eagle Pass Mountains: with *Trentepohlia aurea* on rocks near the mouth of Cañon Creek at 2000 feet. Selkirk Mountains: also among *T. aurea* on rocks by a small stream tributary of Quartz Creek at 3000 feet, and with *G. magma* above the head of Fish Lake at 5200 feet.

GOMPHOSPHAERIA APONINA Kuetz. Eagle Pass Mountains: not uncommon among *Nostoc*, etc., cliffs at the falls of Jordan Creek, 2000 feet.

HYPHEOTHRIX CALCICOLA (Ag.) Rabenh.? The collections agree fairly well with this species in most characters, but showed differences in manner of growth. Eagle Pass Mountains: cliffs by Jordan Creek near the Falls, 2000 feet, and between Jordan Creek and the Big Eddy of the Columbia River, 1800 feet. Selkirk Mountains: Cascade Summit path at 5500 and 6000 feet, and near the foot of the Illecillewaet Glacier at 4500 feet. Also wet rocks above the head of Fish Lake at 5200 feet, by Quartz Creek at 5700 feet and in a pool east of the stream at 6700 feet.

MERISMOPEDIA GLAUCA (Ehrb.) Naeg. Occasional colonies among other algae. Eagle Pass Mountains: wet rocks between Jordan Creek and the Big Eddy of the Columbia River. Selkirk Mountians: pools above the head of Fish Lake at 5200 feet and in the pass at the source of Quartz Creek, 6500 feet; also in pools east of the valley at 6700 feet.

MICROCOLEUS PALUDOSUS (Kuetz.) Gomont. Selkirk Mountains: banks of pools in the pass at the source of Quartz Creek, 6500 feet, abundant with *Nostoc*.

MICROCOLEUS VAGINATUS (Vauch.) Gomont. Selkirk Mountains: pass at the source of Quartz Creek, 6500 feet, scarce, in scum in standing pools.

NOSTOC COMMUNE Vauch. Colonies of *Nostoc* in various stages of development were present in over a third of the collections made, and the younger stages could not be identified with certainty. The more mature colonies seemed generally to agree in measurements with the above, but it is probable that other species are represented, the distinctness of which was not recognized. Found in all districts visited, often being the dominant alga.

NOSTOC MACROSPORUM Menegh. Eagle Pass Mountains: cliffs at the falls of the Jordan, 2000 feet.

NOSTOC MICROSCOPICUM Carm. With the above.

OSCILLATORIA AMOENA (Kuetz.) Gomont. Sometimes growing in pure masses. Selkirk Mountains: on moss or rocks. Cascade Summit trail at 5000 and 6000 feet, a runnel near the Glacier House at 4000 feet and near the foot of the Illecillewaet Glacier at 4500 feet.

Phormidium autumnale (Ag.) Gomont. Selkirk Mountains: forming a blue-green coating on wet rocks above the head of Fish Lake at 5300 feet.

Phormidium retzii (Ag.) Gomont. In pure growth on wet rocks or moss. Eagle Pass Mountains: near the Big Eddy of the Columbia River, at 1500 feet; between the Big Eddy and Jordan Creek at 1800 feet and on cliffs at the Falls of Jordan Creek at 2000 feet.

Scytonema mirabile (Dillw.) Bornet. Eagle Pass Mountains: cliffs by Jordan Creek at the Falls, 2000 feet. Selkirk Mountains: bottom muck in little pools above the head of Fish Lake at 5200 feet.

Scytonema myochrous (Dillw.) Ag. Eagle Pass Mountains: cliffs by Falls of Jordan Creek, 2000 feet. Selkirk Mountains: Quartz Creek, in pools beside the stream at 5700 feet and near the source in pass at 6500 feet, abundant.

Stigonema informe Kuetz. Selkirk Mountains: wet rocks above the head of Fish Lake at 5200 feet, very abundant.

Stigonema mammilosum (Lyngb.) Ag. Eagle Pass Mountains: cliffs near the Falls of Jordan Creek at 2000 feet; Cañon Creek at 2200 feet and rocks in rivulet above 6000 feet.

Stigonema ocellatum (Dillw.) Thuret. Selkirk Mountains: bottoms and sides of pools above the head of Fish Lake at 5200 feet, abundant.

Stigonema panniforme (Ag.) Kirchn. Eagle Pass Mountains: rock near the Big Eddy of the Columbia River at 1500 feet. Selkirk Mountains: wet rocks above the head of Fish Lake at 5200 feet, abundant.

Synechococcus aeruginosus Naeg. Occasional, mixed with other algae and mosses. Eagle Pass Mountains: in a rivulet near the Big Eddy of the Columbia River at 1500 feet; wet rocks between the Big Eddy and Jordan Creek, 1800 feet; cliffs of Jordan Creek near Falls at 2000 feet and rocks at mouth of Cañon Creek at 2000 feet. Selkirk Mountains: Cascade Summit Trail, abundant among moss at 5500 feet and in valley below the Asulkan Glacier at 5000 feet; source of Quartz Creek at 6500 feet.

Tolypothrix byssoidea (Hass.) Kirchn. Selkirk Mountains: forming black expanses on rocks in rivulets in the Quartz Creek Valley at 6000 feet. A little more slender than typical, (trichomes 8 μ) and hardly as much as 1 mm. long. Fragments resembling this species were also found in the Eagle Pass Mountains.

Tolypothrix lanata (Desv.) Wartmann. Eagle Pass Mountains: pond at 6000 feet. Selkirk Mountains: near source of Quartz Creek, in pools at 6500 feet.

Chlorophyceae.

Ankistrodesmus falcatus (Corda) Ralfs. Rare. Eagle Pass Mountains: entangled among other algae in ponds and rivulets at 6000 feet. Selkirk Mountains: in a pool near the foot of the Illecillewaet glacier at 4500 feet.

Ankistrodesmus falcatus tumidus (W. & G. S. West) G. S. West. Rare. Eagle Pass Mountains: in a rivulet at 6000 feet.

Bulbochaete varians subsimplex (Wittr.) Hirn. Selkirk Mountains: rare; in scum of pools in the pass at the head of Quartz Creek, 6500 feet.

Chaetophora elegans (Roth) Ag. Selkirk Mountains: on sticks in a small stream tributary to Quartz Creek, at 3000 feet.

Chlamydomonas nivalis (Baur) Wille. Eagle Pass Mountains: forming patches of "Red Snow" at 7000 feet. As nearly as could be told from preserved material, the cells which gave rise to the red color were of this species. Without living material the determination is of course open to question. It was associated with *Chionaster nivalis*.

Dictyosphaerium ehrenbergianum Naeg. Eagle Pass Mountains: in a rivulet at 6000 feet.

Microspora sp. Selkirk Mountains: in puddles among rocks above the head of Fish Lake an undetermined *Microspora* formed large masses.

Mougeotia calcarea (Cleve) Wittr. Selkirk Mountains: in the valley below the Asulkan Pass at 5000 feet and beside the Cascade Summit Trail, in small pools among rocks, 5500 feet. Sparingly fruiting, but because of its variability in the position of the zygospores and the very few localities known for it in North America, a very interesting find.

Mougeotia parvula Hassall. Eagle Pass Mountains: abundant in fine fruit in a pond at 6000 feet.

Mougeotia was represented in sterile condition very frequently in all districts visited, and the measurements of the filaments indicated the presence of species considerably different from the above.

Oocystis lacustris Chodat. Eagle Pass Mountains: frequent, entangled among filamentous algae in a rivulet at 6000 feet.

Oocystis solitaria Wittr. Frequent among other algae. Eagle Pass Mountains: cliffs by Jordan Creek below the Falls, 2000 feet. Selkirk Mountains: wet rocks above the head of Fish Lake at 5200 feet and in pools in the pass at the head of Quartz Creek at 6500 feet.

Oocystis solitaria major Wille. Selkirk Mountains: occasional among other algae. Cascade Summit trail and valley below the Asulkan Glacier, 5500 and 5000 feet respectively.

Pediastrum boryanum (Turp.) Menegh. Selkirk Mountains: occasional among other algae. In the valley below the Asulkan Glacier at 5000 feet and in a pool east of the Quartz Creek valley at 6700 feet.

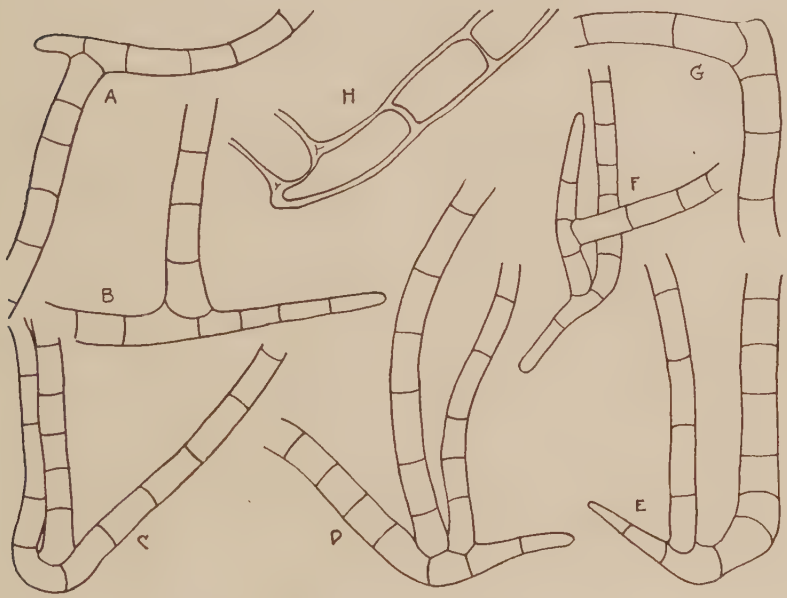
Pediastrum boryanum longicorne Racib. Rare, among other algae. Eagle Pass Mountains: in a rivulet at 6000 feet. Selkirk Mountains: in a pool east of Quartz Creek valley at 6700 feet.

Pediastrum tricornutum alpinum Schmidle[3]. Eagle Pass Moun-

[3] Schmidle, W. Beiträge zur alpinen Algenflora. Oesterr. Bot. Zeit. **45**: 245–253. 1895.

tains: among other algae in rivulets and pools at 6000 feet. Selkirk Mountains: in the valley below the Asulkan Glacier at 5000 feet and at the source of Quartz Creek at 6500 feet. This appears to be the first record for this form in North America.

Prasiola fluviatilis (Sommerf.) Aresch. Selkirk Mountains: collected by Dr. M. H. Jacobs at 5500 feet in a small stream flowing



Rhizoclonium selkirkii. Figs. A–G show branches of various sizes at 85 diameters. Fig. H shows a bend in the filament in a thick-walled region, with one of the cells forming a short spur; magnification 175 diameters.

into Fish Lake. This exceedingly interesting species grew in abundance attached to stones, resembling a small *Enteromorpha*. Collins notes that this species has been found in Greenland and Alaska, but the writer is unaware of any other station as having been reported nearer to the Selkirks than these.

Rhizoclonium selkirkii n. sp[4]. Filaments in tangled masses, frequently and sharply bent. Branches a continuation of the cell, or unicellular to multicellular; tapering, generally formed at a bend in

[4] **Rhizoclonium selkirkii**, spec. nov. Filamenta laxe intricata, geniculata, ex geniculis hic et illic ramulos emittentia. Ramuli aut cum cellulis articulorum continui aut in appendices uni- vel pluriloculares prolongati. Articuli 20–50 μ lati, diametro sesqui vel triplice longiores. Membrana ad 3μ crassa.

the axis, not frequent. Cells reaching 50 μ diameter in the main axis though generally 25 μ to 30 μ, and in the branches about 20 μ. Length of the cells generally one and one-half times to twice the diameter, reaching three times in the branches, rarely shorter. Wall generally thick, attaining 3 μ in the main axis.

Notable in this species are the sharp bends in the filaments where frequently arise branches, one to three in number, which when short are tapering and nearly straight, but when they elongate are flexuous, angled and themselves branched. The large diameter and thick cell-wall of some filaments is also characteristic. Selkirk Mountains abundant in running water, in the pass at the source of Quartz Creek, at 6500 feet.

Scenedesmus bijuga (Turp.) Lagerh. Rare, mixed with other algae. Eagle Pass Mountains: in a rivulet at 6000 feet. Selkirk Mountains: in pools east of Quartz Creek valley at 6700 feet.

Scenedesmus obliquus (Turp.) Kuetz. Selkirk Mountains: in a pool with the above form.

Spirogyra: This genus appeared comparatively seldom, but was seen in sterile condition in the Eagle Pass Mountains and in the Selkirk Mountains near Glacier.

Tetraedron minimum (A. Br.) Hansg. Selkirk Mountains: in pools above the head of Fish Lake at 5200 feet; rare.

Tetraspora lubrica (Roth) Ag. Selkirk Mountains: in the valley below the Asulkan Pass at about 5000 feet, among filamentous algae.

Ulothrix: Only seen in Cañon Creek on *Stigonema mammilosum* and not sufficiently well preserved to be identified.

Zygnema cylindricum Trans. Selkirk Mountains: Loosely attached to rocks, Cascade Summit trail at 5500 feet. With very abundant aplanospores. Sterile *Zygnema* appeared frequently in all districts visited.

Flagellatae.

Hydrurus foetidus (Vill.) Kirchn. Selkirk Mountains: rocks in a stream near the foot of the Illecillewaet Glacier and in rivulets flowing into Quartz Creek, in abundance at 5000 and 5700 feet. It was also abundant in rivulets feeding Lake Louise in the Canadian Rocky Mountains.

Rhodophyceae.

Batrachospermum moniliforme Roth. Eagle Pass Mountains in a rivulet entering Cañon Creek near the Jordan Creek Trail, at 2200 feet. Selkirk Mountains: on sticks in a small stream tributary to Quartz Creek at 3000 feet. In good fruit at both places.

Fungi?

Chionaster nivalis (Bohlin) Wille. Eagle Pass Mountains at 7000 feet in the "Red Snow." First reported by Bohlin from Lap-

land on study of preserved material, and later observed by Wille[5] who finds that it is colorless, and would on that account consider it not an alga as was at first supposed, but a fungus, without clear relationship to any other forms, but possibly to be placed close to the *Chytridiaceae*. The material obtained by the writer was preserved and no observations on color or lack of it could be made. The organism was abundant. and most of the cells were forming aplanospores, either in the center of the cells or in one of the arms.

Botanical Laboratory, University of Pennsylvania.

ADDITIONS TO THE FLORA OF CONNECTICUT. SERIES 2.

The following notes are a continuation of the series published in this journal in 1917, and include the more important results of the work on the flora of the state since that time, bringing the record up to the close of the season of 1920, and including a few entries of the following year.

As in the earlier list, forms not previously reported from the state have been marked, if native, with an asterisk, and if introduced, with a dagger.

The legislature of the state has changed the names of the towns of Huntington and Chatham to Shelton and East Hampton respectively, also has divided the town of Orange into the towns of Orange and West Haven. These changes should be noted in comparisons of present and future records with those made previously.

*Polypodium vulgare L., var. attenuatum Milde. Rare. With the typical form in Redding and Ridgefield (Eames & C. C. Godfrey).

Woodwardia areolata (L.) Moore. North Stonington (Donald White & Harger); Newington and Plainville (H. C. Bigelow).

Thelypteris simulata (Davenp.) Nieuwl. *Aspidium simulatum* Davenp. *Dryopteris simulata* Davenp. Windham (Bissell & Weatherby); Union (Weatherby). Not previously reported from Tolland or Windham Counties.

Botrychium ternatum (Thunb.) Sw., var. intermedium D. C. Eaton. Woodstock (Weatherby); Eastford (Bissell). Not previously reported from Windham Co.

[5] Wille, J. N. F. Algologische Notizen IX–XIV. Nyt Mag. F. Naturvidenskab. 41[1]: 89–185. 1903 (See page 171).

Equisetum pratense Ehrh. Shaded alluvium of the Farmington River, Bloomfield (Weatherby). Previously reported only from the Housatonic Valley.

*Equisetum variegatum Schleich. Salisbury (Bissell). All the Salisbury material referred to var. *Jesupi* in the Catalogue seems to belong rather with the typical form of the species.

E. variegatum Schleich., var. Jesupi A. A. Eaton. Kent (A. E. Blewitt).

Lycopodium inundatum L., var. Bigelovii Tuckerm. Woodstock and Killingly (G. E. Nichols); Plainville (Bissell). Extension of range northward. This variety belongs with the group of plants which in Connecticut are found chiefly near the coast, but extend northward in sand-plain areas.

L. annotinum L., var. acrifolium Fernald. Union (Weatherby); Barkhamstead (A. E. Blewitt); Salisbury (A. F. Hill). Extension of range eastward and westward.

Pinus resinosa Ait. Kent (A. E. Moss). Previously reported only from Granby and Salisbury

Picea canadensis (Mill.) BSP. Dry soil near Lake Pachaug, Griswold (G. E. Nichols). See note under *Abies balsamea*.

Abies balsamea (L.) Mill. Griswold (G. E. Nichols). This species together with *Picea canadensis* is very common in a sandy area adjoining a cemetery in Griswold, where they are both reproducing abundantly among the birches.

Chamaecyparis thyoides (L.) BSP. Litchfield (G. E. Nichols). Not previously reported from Litchfield Co.

Potamogeton natans L. Thompson (Weatherby, Rhodora xxi. 75). Not before reported from Windham Co.

P. americanus C. & S. Goshen, Litchfield and Salisbury (G. E. Nichols), Washington (A. W. Evans).

*P. praelongus Wulf., var. angustifolius Graebner. Plentiful in Umpawaug Pond, Redding (Eames).

*Najas guadalupensis (Spreng.) Morong. Prof. Fernald informs us that there is in the Gray Herbarium a specimen of this species labelled "Conn., Charles Wright." The plant should be looked for by collectors in the state.

Vallisneria americana Michx. *V. spiralis* of Am. authors, not L. Bantam Lake, Morris (G. E. Nichols).

*Panicum polyanthes Schultes. Guilford (W. R. Dudley, 1882; specimen in Herb. N. E. Botanical Club).

Muhlenbergia mexicana (L.) Trin. As a weed in a shaded roadside near a farmhouse, Colebrook (Weatherby). Previously known from Litchfield Co. only from an old collection by J. P. Brace about 1820.

Alopecurus aristulatus Michx. *A. geniculatus*, var. *aristulatus* Torr. Franklin (R. W. Woodward, Rhodora xx. 97); Somers (Bissell); Canaan (A. E. Blewitt). Not before reported from eastern Connecticut.

Sphenopholis obtusata (Michx.) Scribn. Glastonbury (Mrs. F. W. Starmer); Sharon (Weatherby). Not previously reported inland.

Agrostis alba, var. aristata Gray. Old Lyme (R. W. Woodward, Rhodora xx. 97).

Molinia coerulea Moench. Well established in a field, Chaplin (Bissell & Weatherby); dry hillside, Shelton (Harger).

Melica striata (Michx.) Hitchc. Woodbury and Cornwall (Harger).

Glyceria Fernaldii (Hitchc.) St. John. Woodstock (Weatherby), Goshen (Harger).

Puccinellia distans (L.) Parl. Norwalk and Darien (Eames).

*Festuca ovina L., var. hispidula Hack. Dry, steep, rather barren hillside, Franklin (R. W. Woodward, Rhodora xxi. 72); roadside, Canton (A. Lorenz).

Agropyron caninum (L.) Beauv. East Granby (Harger), Waterbury (A. E. Blewitt) Union, Somers, East Haddam, Southington (Bissell).

*A. caninum (L.) Beauv., f. pubescens (Scribn. & Sm.) Pease & Moore. Union (Bissell & Weatherby); Salisbury (Bissell).

A. caninum (L.) Beauv., var. tenerum (Vasey) Pease & Moore. Dry, rocky open woods, Canaan (Bissell & Weatherby), Sharon (Weatherby). Almost certainly native at these stations; previously known only as an introduced plant at Naugatuck.

*Eleocharis interstincta (Vahl) R. & S. Shallow water of Long Pond, Thompson (Una F. & C. A. Weatherby, Rhodora xxi. 75).

E. Robbinsii Oakes. Thompson (Rhodora xxi. 75) and Woodstock (Weatherby). Not previously reported from Windham Co.

E. OLIVACEA Torr. Thompson (Weatherby, RHODORA xxi. 75). Not previously reported east of the Connecticut River.

SCIRPUS SUBTERMINALIS Torr. Thompson (RHODORA xxi. 75) and Woodstock (Weatherby). Not previously reported from Windham Co.

S. CAMPESTRIS Britton, var. NOVAE-ANGLIAE (Britton) Fernald. Guilford (Bissell). An extension of range eastward.

S. CYPERINUS (L.) Kunth, var. PELIUS Fernald. Washington (A. W. Evans), Colebrook (Bissell, M. L. Fernald & Weatherby). Not before reported from Litchfield Co.

RYNCHOSPORA MACROSTACHYA Torr. Woodstock (Weatherby). Not previously reported from northeastern Connecticut.

CAREX DEWEYANA Schwein. Ashford (Weatherby). Not hitherto reported east of Southington and Guilford.

C. STRICTA Lam., var. CURTISSIMA Peck. Rare or occasional throughout western Connecticut in intimate association with the species, intergrading sometimes even in the same tussock (Eames, Harger).

C. UMBELLATA Schkuhr, var. BREVIROSTRIS Boott. Salisbury (Weatherby).

C. PANICEA L. Killingworth (Harger).

C. POLYMORPHA Muhl. Thompson (Weatherby). Not previously reported in northeastern Connecticut.

C. LIMOSA L. Litchfield (Harger).

C. TRICHOCARPA Muhl. Abundant on low meadows near the Housatonic River at Derby and Shelton (Harger). An extension of range southward.

ARISAEMA TRIPHYLLUM (L.) Schott, var. STEWARDSONII (Britton) G. T. Stevens. Thompson and Waterford (Weatherby); abundant over a considerable area at Southbury (Harger); Morris (G. E. Nichols); Norfolk (A. W. Evans). Not previously reported from Windham or New London Counties.

A. TRIPHYLLUM (L.) Schott, var. PUSILLUM Peck. North Stonington (Donald White & Harger); Madison (Bissell); East Lyme (Harger). Not previously reported east of the Connecticut Valley.

PONTEDERIA CORDATA L., var. ANGUSTIFOLIA Torr. Thompson (Weatherby, RHODORA xxi. 75). An extension of range northward.

Juncus Dudleyi Wiegand. Union (Bissell). Not previously reported from eastern Connecticut.

J. dichotomus Ell., var. platyphyllus Wiegand. Sandy ground in the flood-plain of the Connecticut River, East Haddam (Bissell). The specimen from South Windsor which was referred to *J. Dudleyi* in the Catalogue, proves on further study to belong here. These stations place this variety definitely in the group of plants, chiefly of the coastal plain, which in Connecticut are found only near the coast and inland in the central lowland.

J. effusus L., var. decipiens Buch. Shelton (Eames). Previously reported only from Madison.

J. militaris Bigel. Thompson (Weatherby, Rhodora xxi. 74). Not previously reported from Windham Co.

*Luzula campestris (L.) DC., var. bulbosa Wood. In hard, dry soil, Old Lyme (R. W. Woodward, Rhodora xx. 97).

Smilacina trifolia (L.) Desf. Thompson (Weatherby, Rhodora xxi. 74). Not previously reported from Windham Co.

Streptopus amplexifolius (L.) DC. Granby (I. Holcomb). Previously reported only from Salisbury.

S. roseus Michx. Union (Bissell & Weatherby). Extension of range eastward.

Iris pseudacorus L. South Windsor (C. W. Vibert); Winchester (A. E. Blewitt). Previously reported only from towns bordering tide-water.

†I. laevigata Fisch. & Mey. Japanese Iris. Marsh in the flood-plain of the Connecticut River, half a mile from the nearest house (C. W. Vibert). Fugitive from eastern Asia.

Sisyrinchium mucronatum Michx. Bolton and Ellington (Weatherby). An extension of range northward and eastward, bringing this species to the edge of the eastern highland.

S. atlanticum Bickn. A white-flowered form is plentiful in several meadows in Orange and occasional elsewhere (Eames).

Coralorrhiza trifida Chatelain. Union (Bissell & Weatherby). Not previously reported from Tolland Co.

Rumex Acetosa L. West Hartford (Weatherby); Stratford (H. S. Clark); Norfolk (Harger).

Spergularia canadensis G. Don. Old Lyme (R. W. Woodward, Rhodora xx. 97). Previously reported only from Groton.

Stellaria borealis Bigel., var. isophylla Fernald. Thompson (Weatherby); Waterbury (A. E. Blewitt). Not hitherto reported east of the Connecticut Valley.

S. aquatica L. Oxford (A. P. Harger). Previously reported only from Newtown, which station is now flooded.

Lychnis Flos-cuculi L. Southbury (F. S. Collins & Harger).

Ranunculus allegheniensis Britton. Occasional throughout western Connecticut.

†R. repens L., var. pleniflorus Fernald. Rare. Fields and roadsides, escaped from cultivation. Canaan (Weatherby, Harger); Redding (Eames); Danbury (Bissell).

R. reptans L. East Haddam (Harger).

†Aconitum Napellus L. Established along roadsides, Warren (G. E. Nichols).

Actaea rubra (Ait.) Willd., f. neglecta (Gillman) Robinson. Franklin (R. W. Woodward, Rhodora xxi. 116).

†Berberis Thunbergii DC. Established in swampy woods as an escape from cultivation, New Haven (G. E. Nichols).

Dicentra canadensis (Goldie) Walp. Hartland (Weatherby).

Corydalis sempervirens (L.) Pers. A white-flowered form has been collected at Orange (Harger et al.).

†Eruca sativa Mill. Rare. Bridgeport (Eames).

Cardamine pratensis L. South Windham (K. P. Jansson).

Arabis hirsuta (L.) Scop. Killingly (E. E. Brown & Weatherby). Not previously reported from Windham Co.

Tiarella cordifolia L. Bolton and Union (Weatherby). Not previously reported east of the Connecticut River.

Ribes triste Pall., var. albinervium (Michx.) Fernald. Canaan (Harger).

Physocarpus opulifolius (L.) Maxim. Banks of streams at Lyme (G. E. Nichols), and Washington (A. W. Evans).

Amelanchier stolonifera Wiegand. Thompson (Weatherby). Probably occasional throughout in sterile soils.

Kerria japonica (Thunb.) DC. Monroe (Harger).

Rubus neglectus Peck. Thomaston (Harger).

Agrimonia parviflora Ait. Middletown (F. W. Kilbourne). Extension of range eastward.

*Prunus maritima Marsh., f. flava G. S. Torrey. Sandy soil, East Haven (G. E. Nichols).

P. virginiana L., var. leucocarpa Wats. Morris (G. E. Nichols).

Lespedeza Nuttallii Darl. Watertown (A. E. Blewitt). Not before reported from Litchfield Co.

Phaseolus polystachyus (L.) BSP. Beacon Falls (A. P. Harger). Not previously reported away from tide-water in western Connecticut.

Linum medium Planch. Washington (A. W. Evans); Union (Weatherby). Not before reported from Litchfield or Tolland Counties.

Acer pennsylvanicum L. Low swampy ground, Darien (G. E. Nichols). A southerly extension of range, and an interesting station for this species, in that it was growing in the same swamp with Liquidambar and other southern species.

*Impatiens biflora (Walt.) BSP., f. immaculata Weatherby, Rhodora xix. 117 (1917). Thompson and Wolcott (Weatherby); Waterbury (A. E. Blewitt); and probably elsewhere.

*I. biflora (Walt.) BSP., f. citrina Weatherby, Rhodora xix. 115 (1917). Thompson (Bissell & Weatherby); Southington (Una. F. Weatherby).

*I. biflora (Walt.) BSP., f. platymeris Weatherby, Rhodora xxi. 99 (1917). Southbury (Una F. Weatherby).

*I. biflora (Walt.) BSP., f. Peasei A. H. Moore. Moist roadsides, Washington (A. W. Evans).

†Hypericum aureum Bart. Waste ground near a park, Hartford (C. W. Vibert). Fugitive from the southeastern U. S.

H. prolificum L. Established in woods, Washington (A. W. Evans).

*H. dissimulatum Bickn. Voluntown (R. W. Woodward).

*Helianthemum propinquum Bickn. Dry field near the Rhode Island line at North Stonington (Harger); Southington (Bissell).

Lythrum alatum Pursh. Suffield (J. F. Smith); Woodbury (Harger).

Myriophyllum exalbescens Fernald. *M. spicatum* Am. auth. not L. Occasional throughout western Connecticut, usually sterile, but flowering at one pond in Danbury (Eames & C. C. Godfrey).

Epilobium molle Torr. Franklin (R. W. Woodward, Rhodora xxi. 116). Not previously reported east of the Connecticut Valley.

*Circaea canadensis Hill. *C. intermedia* Ehrh. Rich moist woods, Union and Kent (Weatherby). At the former station growing with *C. alpina* and *C. latifolia* and appearing like a hybrid between them.

Aralia spinosa L. Spreading from the root and thoroughly established in rear of a ruined house and in adjacent pasture at Litchfield (Harger).

Sanicula trifoliata Bickn. Middlefield (Harger); Hartland (Bissell). The latter station an extension of range northward.

Conioselinum chinense (L.) BSP. Goshen and Warren (Harger). Probably occasional in cold swamps of northwestern Connecticut.

Moneses grandiflora (L.) Gray. Windham, at South Windham (K. P. Jansson).

Ledum groenlandicum Oeder. North Canaan (G. E. Nichols).

Rhododendron maximum L. Berlin (Miss M. E. Bowers). Not before reported from Hartford Co.

Arctostaphylos Uva-ursi (L.) Spreng., var. coactilis Fernald & Macbride. Union and Putnam (Weatherby). Extensions of range northeastward.

†Primula officinalis Jacq. English Cowslip. A colony of forty or fifty plants apparently well established and seeding in shaded calcareous soil on a river bank, Salisbury (Weatherby).

Lysimachia producta (Gray) Fernald. Oxford (Harger).

†L. clethroides Duby. Dry waste ground, Hartford (Donald Deane). Fugitive from Japan.

Bartonia paniculata (Michx.) Robinson. Guilford (G. H. Bartlett & Harger). Not previously reported from New Haven Co.

Convolvulus spithamaeus L. Franklin (R. W. Woodward). Not before reported east of the Connecticut Valley.

Hydrophyllum virginianum L. Watertown and Naugatuck (A. E. Blewitt); Beacon Falls (Harger).

Cynoglossum boreale Fernald. Warren (Harger).

Agastache scrophulariaefolia (Willd.) Kuntze, var. mollis (Fernald) Heller. Naugatuck (A. F. Hill); Washington (A. W. Evans) not previously reported from New Haven Co.

†Salvia Sclarea L. Clary. Bridgeport (Eames). Introduced from Europe.

Blephilia hirsuta (Pursh) Benth. Washington (A. W. Evans). Previously reported only from Waterbury and Thomaston.

†Mentha verticillata L., var. pilosa (Spreng.) Briq. Moist roadside, Newtown (Eames). "One of the variations of a hybrid of *M. arvensis* and *M. aquatica.*" M. L. Fernald.

†M. stachyoides Host. Dry roadside, Newtown (Eames). "A polymorphous hybrid of *M. arvensis* and *M. rotundifolia.*" M. L. Fernald.

†Perilla frutescens L., var. crispa (Benth.) Deane. Rare. Bridgeport (Eames).

†Solanum triflorum Nutt. Waste ground at State Pier, New London (K. P. Jansson). Fugitive or adventive from the western U. S.

†Linaria Spartea (L.) Hoffmansegg & Link. Plentiful in a dry field, Fairfield (Eames). A white-flowered form also occurs at this station.

†L. reticulata Willd. Rare. Fairfield, with the preceding (Eames).

†L. bipartita Willd. Rare. Fairfield, with the preceding (Eames).

Digitalis ambigua Murr. Washington (A. W. Evans).

Agalinis tenuifolia (Vahl) Raf. *Gerardia tenuifolia* Vahl. A white-flowered form occurs at Milford (A. W. Evans).

Utricularia resupinata B. D. Greene. Muddy pond margin, Woodstock (Weatherby). Not previously reported from northeastern Connecticut.

U. purpurea Walt. Thompson, locally frequent (Weatherby). Not previously reported from Windham Co.

†Plantago media L., var. Monnieri (Giraud) Rouy. Rare. Bridgeport (Eames). Introduced from Europe.

Sherardia arvensis L. Waterbury (A. E. Blewitt).

*Galium circaezans Michx., var. glabrum Britton. Shaded bank of ravine, Derby (Weatherby).

G. palustre L. New Milford, North Canaan and Danbury (A. E. Blewitt); Goshen (Bissell).

G. trifidum L. Goshen (Harger). A southerly extension of range.

*Lobelia cardinalis L., f. alba (A. Eaton) St. John. Edges of stream, Washington (A. W. Evans).

†Lonicera bella Zabel. Westport (Eames). An escape from cultivation.

L. canadensis Marsh. Union and Ashford (Weatherby). Not before reported east of the Connecticut Valley.

Erigeron ramosus (Walt.) BSP., var. septentrionalis Fernald & Wiegand. aterbury (A. E. Blewitt). Previously reported only from Greenwich and Middlebury.

E. pusillus Nutt. Bolton (Weatherby); Old Lyme (Harger).

Silphium perfoliatum L. Flood terraces, Roxbury (G. E. Nichols); open woods, Washington (A. W. Evans).

Aster amethystinus Nutt. Berlin (Bissell). Not previously reported from Central Connecticut.

*A. nemoralis Ait. Swampy thickets, margin of Long Pond, Thompson (Harger; Weatherby, Rhodora xxi. 75).

A. dumosus L. Fairfield (Eames). An extension of range westward.

*Antennaria petaloidea Fernald. Rare. Dry pastures, Oxford (Harger); Franklin (R. W. Woodward).

Xanthium commune Britton. Old Lyme (Bissell). An extension of range eastward.

*Bidens Eatoni Fernald. Brackish marshes, Old Lyme (R. W. Woodward, Rhodora xx. 98)

*B. heterodoxa (Fernald) Fernald & St. John, var. monardaefolia Fernald, Rhodora xix. 259 (1917). Strand of Pocotopaug Lake, East Hampton (R. W. Woodward).

*B. heterodoxa (Fernald) Fernald & St. John, var. agnostica Fernald, l. c. Same locality (Bissell & R. W. Woodward).

B. Beckii Torr. Thompson (U. F. & C. A. Weatherby); Voluntown (K. P. Jansson); Litchfield and Morris (G. E. Nichols). Not before reported from east of the Connecticut Valley or from Litchfield Co.

†Gaillardia aristata Pursh. In grass land, Woodbridge (Eames). Escaped from cultivation.

Senecio viscosus L. Guilford (Bissell). Previously reported only from Stamford.

Centaurea vochinensis Bernh. Occasional, especially in grassland throughout Fairfield Co. (Eames).

Lapsana communis L. Franklin (R. W. Woodward, Rhodora xx. 98).

†Sonchus asper (L.) Hill, var. pungens Bischoff. Waste ground at Bridgeport (Eames). Flowers without ligules.

E. B. Harger,
C. B. Graves,
E. H. Eames,
C. H. Bissell,
C. A. Weatherby.

SOME NOVA SCOTIA MOSSES.

Edwin B. Bartram.

While actively engaged in field work covering portions of central and southwestern Nova Scotia during July 1921 the writer, in company with Prof. M. L. Fernald and Mr. Bayard Long, collected about 140 numbers of mosses. No attempt was made to obtain a representative series as the pressure of other work left only brief intervals in which to pick up any thing that was obviously interesting and close to hand but as the material was worked over several range extensions suggested that a brief survey of some of the more interesting species might not be unworthy of record.

The bogs, lake shores and spruce woods of Yarmouth Co., where we spent most of out time, were relatively unproductive but as we worked north through Annapolis Co. into more broken country and on through the gypsum outcrops near Windsor to the granite and sandstone areas of Hants Co. and Halifax Co. the variety of species broadened to a rather gratifying extent.

Sphagnum macrophyllum Bernh. Covering the bottom of a shallow arm of Five Island Lake, Hants Co. Dr. A. LeRoy Andrews in his letter verifying the determination of this species says that this is the first record outside of the range from Maine to Florida given in the North American Flora and therefore new to Canada. It seems to be one of pine barren elements like *Sphagnum Pylaesii* or *Utricularia purpurea* that has spread northward through the marshes and pools of the coastal plain at a time when a continuous land connection existed between Newfoundland, Nova Scotia and the coastal plain

region of the Atlantic Seaboard States. At any rate it presents a very happy illustration of the theory which Prof. Fernald has so ably demonstrated.

Sphagnum Pylaesii Brid. Abundant in a shallow pond near Armdale, just outside of Halifax.

Andrea petrophila Ehrh. In dense reddish cushions on the granite ledges near Uniacke Lake, Hants Co.

Andrea crassinervia Bruch. With the preceding and more abundant. Also on dry sandstone faces bordering Shubenacadie Grand Lake, Halifax Co. Fruiting freely.

Dicranum fulvum Hook. Frequent on boulder faces throughout the range.

Dicranum fuscescens Turn. Rather common in thin soil on boulders and ledges.

Dicranum longifolium Ehrh. Rock faces near Armdale.

Dicranum montanum Hedw. Rock faces in woods near Armdale.

Dicranum spurium Hedw. Thin soil on sandstone and granite ledges in Hants Co. and Halifax Co. Frequent and variable.

Dicranum viride Schimp. On the bark of living trees bordering the lakes in Yarmouth Co. and Annapolis Co.

Ditrichum lineare (Sw.) Lindb. Springy bank near Yarmouth.

Grimmia maritima Turn. Very abundant in dense black cushions on the shore rocks and headlands of Cape Forchu, Yarmouth Co.

Grimmia Olneyi Sulliv. On sandstone rocks, Blueberry Point, Shubenacadie Grand Lake. This species has been found from the New England States west to southern Ontario and southward but the present record seems to extend the range quite a distance in the northeasterly direction. The tufts were vigorous and mostly pure with about the average number of fertile plants but in spots a mixture of *Andrea crassinervia* and *Rhacomitrium microcarpum* was much in evidence.

Rhacomitrium aciculare (L.) Brid. Frequent on wet rocks along the lakes shores. Generally sterile but occasional colonies richly set with fruit.

Rhacomitrium heterostichum alopecurum Hübn. Abundant on granite ledges near Lake Uniacke.

Rhacomitrium heterostichum gracilescens B. & S. With the preceding and hardly separable from it except by the strictly muticous leaves.

Both of these varieties seem very close to *R. sudeticum*. The more simple stem and absence of short lateral branches in the latter species may be influenced to some extent by the habitat. The distinguishing character is at best an unstable one and from a conservative point of view it would seem that all three forms might be conveniently grouped under *R. heterostichum* with varietal rank.

Rhacomitrium microcarpum (Schrad.) Brid. Common on granite faces in Hants Co. and Halifax Co.

Gymnostomum rupestre Schleich. Infrequent and sterile on gypsum ledges near Windsor.

Barbula fallax Hedw. On gypsum rocks near Windsor.

Tortula papillosa (Muell.) Wils. On shade trees in Windsor.

Ulota crispa Brid. Common throughout the region.

Ulota americana (Beauv.) Lindb. On shaded boulders along the lake shores.

Ulota Ludwigii Brid. Frequent and often mixed with *U. crispa*.

Aulacomnium androgynum Schwaegr. Found only on the ledges of the headlands of Cape Forchu, Yarmouth Co., where the slender deep green plants in dense cushions, very dark brown to blackish beneath, with numerous pseudopodia presented a striking combination of field characters.

Leptobryum pyriforme (L.) Wils. Crevices of gypsum rock near Windsor.

Mnium hornum L. Frequent in Yarmouth Co. and freely fruiting.

Pterigynandrum filiforme (Timm) Hedw. In fine yellowish green mats on shaded granite ledges near Uniacke Lake.

Hylocomium brevirostre (Ehrh.) B. & S. Shore of St. John Lake, Yarmouth Co.

Climacium dendroides (L.) Web. & Mohr. Edge of swale at Wentworth gypsum quarries near Windsor.

Campylium chrysophyllum (Brid.) Bryhn. Shaded gypsum ledges near Windsor.

Campylium stellatum (Schreb.) Bryhn. Wet meadow bordering Brazil Lake, Yarmouth Co.

Calliergon stramineum (Dicks.) Kindb. Wet savannah bordering St. John Lake, Yarmouth Co.

Leucodon sciuroides (L.) Schwaegr. Mixed with *L. brachypus* on old willow trees near Windsor.

Neckera complanata (L.) Hübn. On tree bordering St. John Lake. Sterile and apparently rare.

Neckera pennata (L.) Hedw. Common in woods bordering the lakes. The capsules are conspicuous and abundant.

Bushkill, Pennsylvania.

Waldsteinia in Maine.—When the Portland Society of Natural History in 1862, issued its first "Catalogue of Maine Plants," *Waldsteinia fragarioides* (L.) Trattinick was listed from Bethel; but no specimens were produced to substantiate the claim, and the plant has never been found since then in that region. In fact from 1862 till 1922 the species had not been reported authentically from any portion of the state.

About June 1 of the current year, Frederick Godwin, a boy in the 7th grade, brought me a 3-inch bit from the top of a scape bearing one blossom and a calyx from which petals had fallen, but which plainly showed perigynous insertion of the stamens. A little study convinced me of the identity of the plant and I commandeered the services of a friend from Waterville to bring me in some of the plants. It was then so nearly out of flower that only three good specimens could be obtained. One of these has been placed in the herbarium of the New England Botanical Club. The colony is extensive and is located in the town of Benton.—John C. Parlin, Albion, Maine

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